

# Biosecurity risk to trade in NZ forest products

12<sup>th</sup> Annual FOA/MAF Forest Biosecurity Workshop  
Rotorua, 18/19 February 2014

Ministry for Primary Industries  
Manatū Ahu Matua



What's been  
achieved in a year?



Looking back a year:

# Combating foliar diseases – what's new?

11<sup>th</sup> Annual FOA/MAF Forest Biosecurity Workshop  
Rotorua, 7/8 March 2013

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# Achievements since last workshop

## Combating Foliar Diseases – What's New?

(FOA/MPI 11<sup>th</sup> Annual Forest Biosecurity Workshop – 7/8 March 2013)

### Workshop Objectives:

1. To inform stakeholders on new approaches to solving foliar diseases.
2. To work towards revising our forest biosecurity research strategy.



# Workshop Report (on FOA website)

## Workshop Findings:

### Top findings/recommendations:

We have several foliar diseases already impacting on health and productivity of radiata pine and Douglas-fir in New Zealand and we can anticipate more in the near future.

We need to develop tools to protect the current crop from foliar diseases.

We need a strategy to "future-proof" our forests against disease. There are a lot of good tools available (e.g. metabolomics, etc) and these should be considered as part of the strategy.

There are a lot of good resources in NZ to enhance the fight against foliar diseases and these include diagnostics capability and tools, RPBC trials and breeding programme, a centre for endophyte knowledge, etc. and these should be built on collaboratively to develop new multi-pathed (portfolio) approaches for managing phytophthora and other pathogens.

# Key points made:

## Current crop imperative

- Control tools and techniques

## Strategic issues

- Future proof forests
- Focus on phytophthoras
- Genetics is not enough

## Pathogen understanding

- Pathogen interactions – host & pathogens
- Disease triggers

# More key points:

## **Breeding and molecular technologies**

- Study impacts of diseases on trial sites
- Breed for cross-resistance
- Make the most of genomics and phenotype data
- Metabolomics platform required

## **Endophytes and other technologies**

- “Biological sprays” for current crop
- Protect new crop

# What we said we'd do:

## Action Plan from the Workshop:

- The Forest Biosecurity Committee will review the key points from the workshop and work towards implementing recommendations and working with RPBC, Scion and the Bioprotection Centre etc. It will also have discussions with the recently formed Interim Forestry R&D Committee, which is a precursor committee to a successful forest industry commodity levy.
- In particular there appears to be a need to be more pro-active to deal with some pathogens before they become a problem e.g. *P. multivora*. The establishment of a science-led Phytophthora Centre would appear to be a good step to address this potentially destructive pathogen as well as others.

# So – what's happened since?

Cover:

- FBC
- STIMBR
- MPI
- Scion
- Bioprotection
- And – Log Levy implications to biosecurity

# FBC (Forest Biosecurity Committee)

- Working well with MPI and researchers
- FHS in redesign phase
- FBC/TSC working with researchers
- New programme milestones established



# Key research – new milestones

## **|Needle Disease Research Milestones 2013-2014**

Budget \$900k including \$300k FOA

## **Phytophthora Science Milestones 2013-2014**

Programme – Phytophthora Science (Phyto MBIE)

Budget \$2.2M including \$393k FOA pa (FOA year from 1 Jan 2014 to 30 June 2014 is \$196.5k)

## **Bioprotection for foliar diseases and disorders of radiata pine**

**Progress report to NZ Forest Owners Association**

**31 December 2013**

# Increased knowledge → solutions

## Needle disease efforts:

- Understanding, control, disease triggers
- Endophyte technology progress

## Phytophthora science efforts

- Big win for Scion and industry (MBIE \$\$)
- Phytophthora Science Centre tbe
- Metabolomics platform tbe
- Screening RPBC material
- Controlled inoculation studies

As for field trials:

**Ironically, the forests  
have remained  
pretty green!**

**Good for foresters;  
tough for research!**



# STIMBR

- Focus on methyl bromide, phosphine and the supply chain
- Recapture feasibility study completed
- Destruction techno-economic study due.



# MPI

- Improved export requirements for timber to Australia
- Increased border staff
- Forestry pests successfully managed at border



Collaboration and funding:

- Myrtaceae barcoding
- Aerial spot spraying

# Scion (some examples)

- National pest trapping network to help determine a fumigant-free period for export forest products
- DNA barcode library for Myrtaceae species (with MPI)
- Seeing some effect of phosphite on RNC
- New Phytophthora Science programme
- New inoculation chamber
- Pk but not Pp found in old herbarium samples
- Progress - breeding for RNC resistance (w RPBC)
- Two new aerial spray methods (w MPI and HRML)



# Scion – two key papers in 2014

**|Pathogenicity of *Phytophthora pluvialis* to *Pinus radiata* and its relation with red needle cast disease in New Zealand.**

MA. Dick, NM. Williams\*, MK-F. Bader, JF Gardner, and LS Bulman

**|Decline in vitality of propagules of *Phytophthora pluvialis* and *Phytophthora kernoviae* and their inability to contaminate or colonise bark and sapwood in *Pinus radiata* export log simulation studies**

Ian Hood<sup>1</sup>, Nari Williams<sup>1,\*</sup>, Margaret Dick<sup>1</sup>, Natalija Arhipova<sup>2</sup>,

Mark Kimberley<sup>1</sup>, Peter Scott<sup>1</sup>, Judy Gardner<sup>1</sup>

# Bioprotection Research Centre

Bioprotection for foliar diseases and disorders of radiata pine

- >100 Trichoderma root endophytes screened in nurseries
- Best treatments for plantation trials
- > 10 new plantation trials established in high disease areas
- Preliminary results: increased growth, reduced mortality
- SE Asia – 2 yr results: 48% incr. vol. and >30% reduced mortality for Acacia mangium

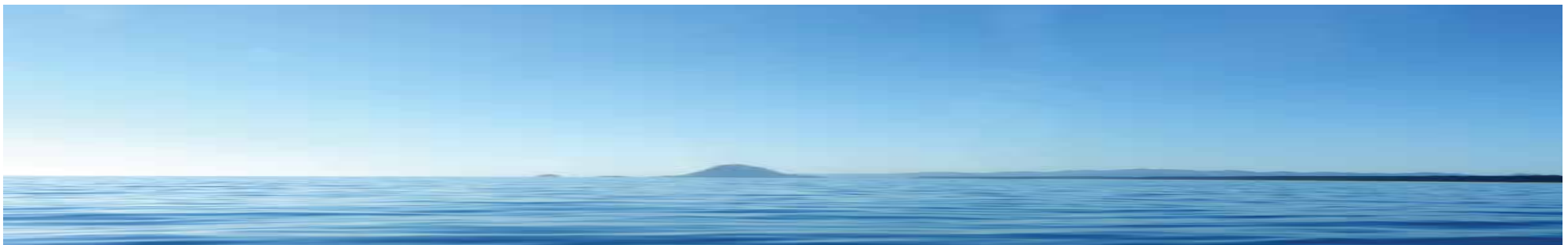


# Log Levy implications to biosecurity

- Effective 1 Jan '14
- R&D funding
- FHS – 100% coverage
- FBC directing R&D
- R&D Com making recommendations on R&D priorities and managing contracts
- FBC to have wider stakeholder focus

# So how have we done overall?

<b>Industry/MPI</b>	<b>Providing direction to R&amp;D Redesigning Forest Health Surveillance – in partnership Working well together on key issues</b>
FBC - operation	Revamped this year; focus on operations and less on R&D TSC to continue to provide research direction and liaison
Research capability	Scion – new \$\$ phytophthora science; good research progress Bio-protection programme – good progress on endophytes
Trade issues	Research proving high value - publications out soon
Research - solutions	Still a long way to go; no breakthroughs in sight for current crop; more optimistic for future crop



# Thanks